UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,492	01/05/2006	Xuexian Yang	L4050.0007	8281

32172   7590   08/21/2009
DICKSTEIN SHAPIRO LLP
1633 Broadway
NEW YORK, NY 10019

EXAMINER
SAMS, MATTHEW C

ART UNIT	PAPER NUMBER
2617	

MAIL DATE	DELIVERY MODE
08/21/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/563,492	YANG ET AL.
Office Action Summary	Examiner	Art Unit	
	MATTHEW SAMS	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>26 May 2009</u>.

2a) ☐ This action is FINAL.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>3-5 and 8-10</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>3-5 and 8-10</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This office action has been changed in response to the amendment filed on 5/26/2009.

2.   Claims 1, 2, 6 and 7 have been canceled. Claims 3 and 8 have been amended.

Response to Arguments

3.   Applicant's arguments with respect to claims 3-5 and 8-10 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 3-5 and 8-10 are rejected under 35 U.S.C. 102(e) as being unpatentable over Western (US-7,489,703) in view of Cimini, Jr. et al. (US-7,301,965 hereinafter, Cimini).

      Regarding claim 3, Western teaches a method for improving channel transmission efficiency (Abstract "A quality measurement is performed during the transfer. A second coding scheme is then selected based upon the quality measurement") in a wireless network (Fig. 1) comprising the steps of:

1)   starting data transmission and splitting the MAC layer service data packet according to an initial threshold for the length of the data frame to transmit (Col. 10 lines 20-24, where DCS-X represents the size for an initial coding scheme, wherein the different coding schemes have varying packet lengths, see Figs. 3-6 and Fig. 7 [715])

2)   reading and recording acknowledgement information (ACK) sent by a partner in real-time; (Fig. 7 [730 & 740])

3)   determining the channel quality of the wireless network according to whether the ACK information has been successfully received for a predetermined times (Fig. 7 [740 & 743]), if the channel of the wireless channel is of a good quality, then increasing the threshold for the length of the data frame split from the MAC layer service data packet, and other wise decreasing the threshold for the length of the data frame; (Fig. 7 [745, 750 & 765])

4)   splitting a subsequent MAC layer service data packet according to the threshold for the length of the data frame adjusted in step 3) to transmit; (Fig. 7 [755, 757, 767 & 769], Figs. 3-6 and Col. 10 line 53 through Col. 13 line 12) *note:* Fig. 7 is for downlinks, similar discussion follows in Fig. 8 for uplink modifications as well as discussed in Col. 13 line 13 through Col. 15 line 53

5)   repeating steps 2), 3) and 4) until the end of this data transmission; (Fig. 7 loops back to before step 740)

wherein the step 3) includes the steps of:

3a)   presetting a time interval for adjusting the threshold for the length of the data frame; (Western Col. 10 lines 39-45)

3b)   determining   whether   the   ACK   information   is   received   for   the
predetermined times within the time interval preset in step 3a), if the ACK information is
successfully received for the predetermined times, then the channel of the wireless
network being of a good quality and increasing the threshold for the length of the data
frame, and otherwise the channel of the wireless network being of a bad quality and
decreasing the threshold for the length of the data frame. (Western Fig. 7 [743, 745,
750 & 757] *i.e.* good quality & [743, 745, 765 & 769] *i.e.* bad quality)

Western teaches the mobile station can utilize the IEEE 802.11 protocol (Col. 6
lines 41-45), that the teachings can be applied to network topology besides GSM (Col. 6
lines 49-54) and that a specific number of transmissions are going to be monitored to
determine whether the packet size should be changed (Fig. 7 [740-745]), but differs
from the claimed invention by not explicitly reciting the preset time interval is a product
obtained by multiplying the number of the sent data frames by a maximum time duration
required from sending of one data frame to receipt of an ACK of this frame specified in
IEEE 802.11 protocol.

In an analogous art, Cimini teaches packet shaping for mixed rate 802.11
wireless networks (Abstract) that includes starting data transmission and splitting the
MAC layer service data packet according to an initial threshold for the length of the data
frame to transmit (Col. 7 lines 6-23) and having a preset time interval that is a product
obtained by multiplying the number of the sent data frames by a maximum time duration
required from sending of one data frame to receipt of an ACK of this frame specified in
IEEE 802.11 protocol. (Cimini utilizes the MAC detailed in the IEEE 802.11 protocol

(Col. 4 lines 15-43), teaches the transmission of 2 packets (Fig. 12A [FRAGMENT1 and FRAGMENT0]) and that the time to transmit/receive 2 responses (Fig. 12A [ACK0 & ACK1]) is twice the time than if only one is transmitted/received) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to be motivated to implement the method for improving channel transmission efficiency of Western after modifying it to incorporate the ability to have preset time lengths for successfully receiving packets as taught in the IEEE 802.11 network protocol as described by Cimini since having a standardized time prevents an abundance of unnecessary retransmission requests/unsuccessful responses because the time is too short, thereby maximizing the data throughput.

Regarding claim 4, Western in view of Cimini teaches the initial threshold is a threshold specified in *Wireless LAN Media Access Control (MAC) and Physical Layer (PHY) Specifications (IEEE 802.11).* (Cimini Col. 1 lines 16-17, Col. 2 line 63 through Col. 3 line 2 and Col. 7 lines 56-63)

Regarding claim 5, Western in view of Cimini teaches wherein the step 3) includes the steps of:

3A)   presetting the times N for which the ACK information is continuously received successfully before increasing the threshold for the length of the data frame, and the times M for which the ACK information is continuously received unsuccessfully before decreasing the threshold for the length of the data frame; (Western Fig. 7 [740])

3B)   when the ACK information is continuously received successfully for N times, the channel of the wireless network being of a good quality and increasing the

threshold for the length of the data frame; (Western Fig. 7 [743, 745, 750 & 757] and Figs. 3-6)

3C)   when the ACK information is continuously received unsuccessfully for M times, channel of the wireless network being of a bad quality and decreasing the threshold for the length of the data frame. (Western Fig. 7 [743, 745, 765 & 769] and Figs. 3-6)

Regarding claim 8, Western in view of Cimini teaches wherein the predetermined times for receiving the ACK information is in a range between a number obtained by subtracting the number of lost packets allowable to the user from the number of sent data frames and the number of the sent data frames. (Western Col. 11 line 11 through Col. 12 line 67 *i.e.* based on the value determines which quality category is determined)

Regarding claim 9, Western in view of Cimini teaches the increasing range of the threshold for the length of the data frame is to increase 0-100% of the previous threshold each time; (Cimini Col. 8 lines 5-67, Western Figs. 3-6 and Fig. 7 [750]) and the decreasing range of the threshold for the length of the data frame is to decrease 0-100% of the previous threshold each time. (Cimini Col. 8 lines 5-67, Western Figs. 3-6 and Fig. 7 [765])

Regarding claim 10, Western in view of Cimini teaches the threshold for the length of the data frame is in a range from a minimum frame length threshold specified in IEEE 802.11 specification to a maximum frame length threshold specified in IEEE 802.11 specification. (Cimini Col. 1 lines 16-26 and Col. 4 lines 33-43)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW SAMS whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MATTHEW SAMS/
Examiner, Art Unit 2617